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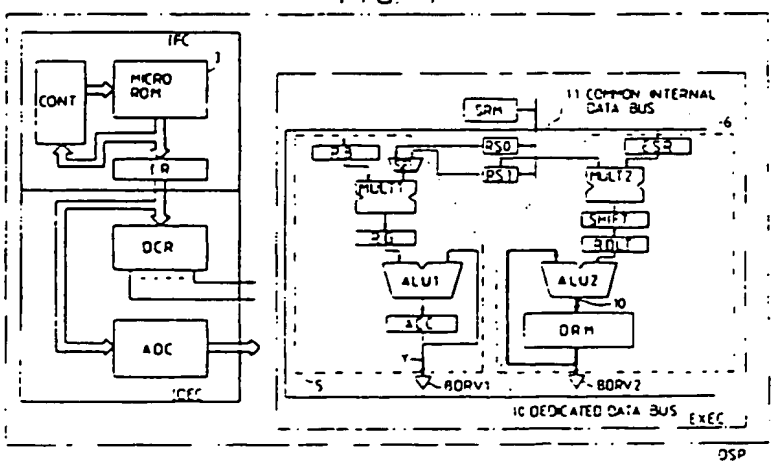
(54) **Arithmetic circuit, and adaptive filter and echo canceler using it.**

(57) In the digital signal processor used for realizing application filters, the filter output calculation processing system 5 and the tap coefficient update calculation processing system 6 are separated. In the update calculation processing system 6, the integrating calculation for the tap coefficient updating that requires read and write operations on the data memory DRM is performed in one machine cycle by using the dedicated data bus 10 and executing the read-modify-write operation on the data memory. As a result, to the extent that the time taken by the integrating processing which has conventionally required two machine cycles can be shortened, the operation clock frequency can be lowered to reduce the power consumption while maintaining the processing capability per unit of time.

FIG. 1



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EUROPEAN SEARCH REPORT

Application Number
EP 92 10 4526

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X A	WO-A-86 02181 (MOTOROLA INC) 10 April 1986 * page 1, line 15 - page 2, line 16; figure 1 *	1 2-14	G06F15/78 G06F7/544
X A	PROCEEDINGS OF THE IEEE vol. 75, no. 9 , September 1987 , NEW YORK US pages 1185 - 1191 G. HILLMAN 'DSP56200 : An algorithm-specific digital signal processor peripheral' * page 1187, left column, line 3 - page 1188, left column, line 11 * * page 1189, left column, line 19 - page 1189, right column, line 46 *	1 2-14	
X	PATENT ABSTRACTS OF JAPAN vol. 15, no. 107 (P-1179)14 March 1991 & JP-A-30 001 226 (MITSUBISHI ELECTRIC CORP) 7 January 1991 * abstract *	1	
A	IEEE JOURNAL OF SOLID-STATE CIRCUITS vol. 24, no. 6 , December 1989 , NEW YORK US pages 1639 - 1646 W. HSU ET AL 'An acoustic echo canceler' * page 1643, paragraph III-C - page 1644 *	1-14	
A	MICROPROCESSORS AND MICROSYSTEMS vol. 12, no. 8 , October 1988 , LONDON GB pages 471 - 480 R. KARKOWSKI 'Four-cycle butterfly arithmetic architecture' * page 476, line 19 - line 34 * -/--	1-14	

TECHNICAL FIELDS SEARCHED (Int.Cl.5)
G06F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	7 January 1994	Michel, T

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EP 92 10 4526

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
A	US-A-4 491 910 (E. CAUDEL) 1 January 1985 * abstract; claim 1 *		

TECHNICAL FIELDS SEARCHED (Int.Cl.5)

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